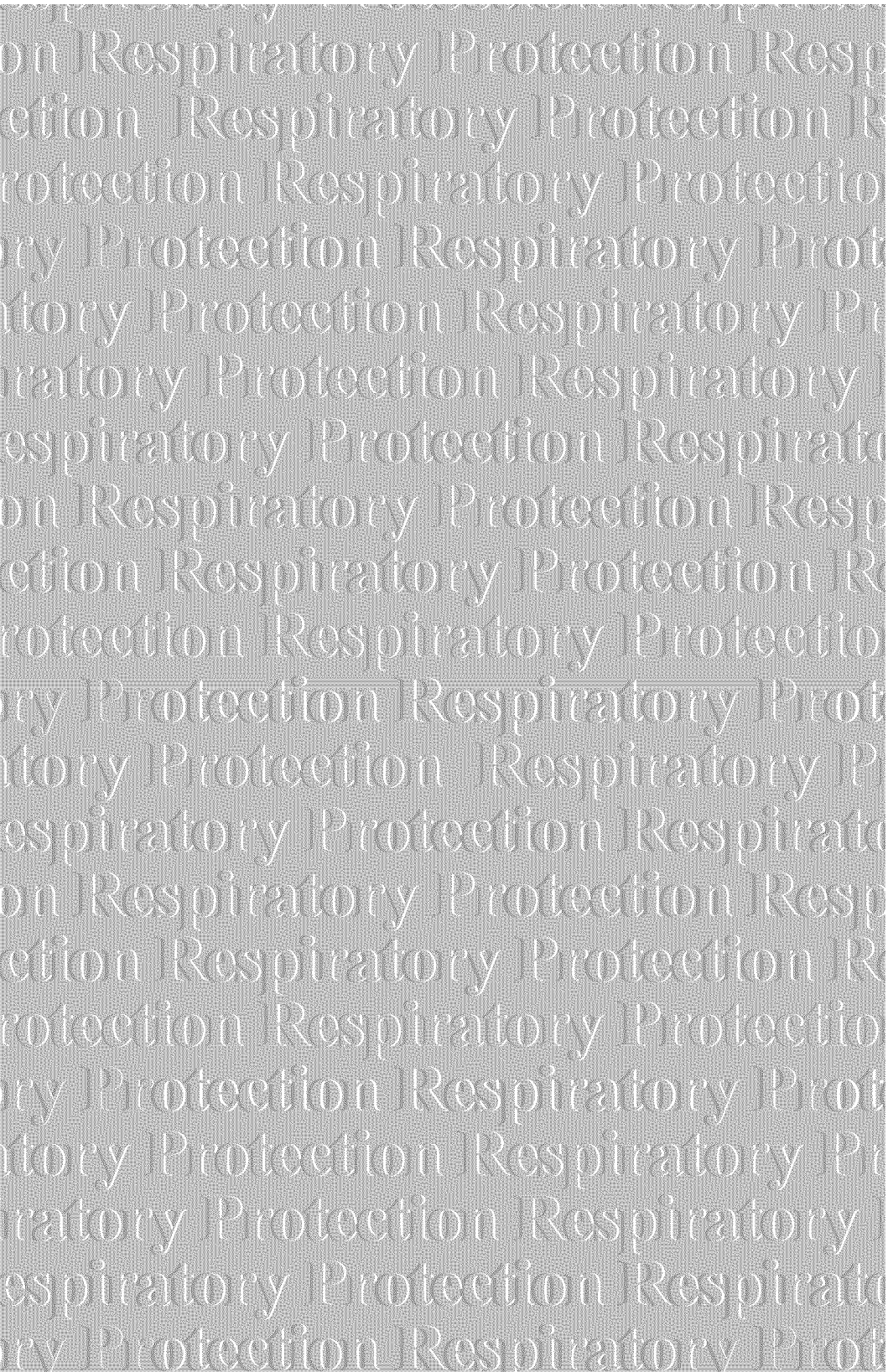
Respiratory Protection

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Abstract
A respirator is an enclosure that covers the nose and mouth or the entire face or head. Respirators can have two general types of fit: (1) tight-fittingthat is, quarter masks, which cover the mouth and nose; and half masks, which cover the face from the hairline to below the chin; and (2) loose-fitting, such as hoods, helmets, blouses, or full suits that cover the head completely. There are two major classes of respirators: (1) air-purifying to remove contaminants from the air, and (2) atmosphere-supplying to provide clean, breathable air from an uncontaminated source. As a general rule, the latter-type respirator is used for more hazardous exposures.

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44

Respiratory Protection

U.S. Department of Labor
Occupational Safety and Health Administration

OSHA 3079
1998 (Revised)

This informational booklet is intended to provide a generic, non-exhaustive overview of a particular standards-related topic. This publication does not itself alter or determine compliance responsibilities, which are set forth in OSHA standards themselves and the *Occupational Safety and Health Act*. Moreover, because interpretations and enforcement policy may change over time, for additional guidance on OSHA compliance requirements, the reader should consult current administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the courts.

This information will be made available to sensory impaired individuals upon request.

Voice phone: (202) 219-8615;
Telecommunications Device for the Deaf (TDD) message referral phone: 1-800-326-2577.

Respiratory Protection

U.S. Department of Labor
Alexis M. Herman, Secretary

Occupational Safety and Health Administration
Charles N. Jeffress, Assistant Secretary

OSHA 3079
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What Is a Respirator ? 1

A respirator is an enclosure that covers the nose and mouth or the entire face or head. Respirators can have two general types of fit: (1) tight-fitting—that is, quarter masks, which cover the mouth and nose; and half masks, which cover the face from the hairline to below the chin; and (2) loose-fitting, such as hoods, helmets, blouses, or full suits that cover the head completely.

There are two major classes of respirators: (1) air-purifying to remove contaminants from the air, and (2) atmosphere-supplying to provide clean, breathable air from an uncontaminated source. As a general rule, the latter-type respirator is used for more hazardous exposures.

2 Why Do Employees Need Respirators?

Some of the most common hazards to employees' lungs are the lack of oxygen and the presence of harmful dusts, fogs, smokes, mists, fumes, gases, vapors, or sprays including substances that may cause cancer, lung impairment, other diseases, or death.

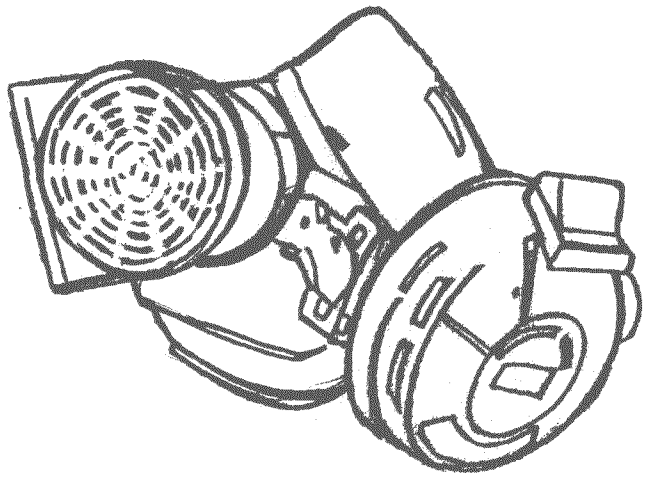
There are many workplace situations that involve toxic substances and for which engineering controls may be inadequate to control exposures, and respirators are used in these situations as a back-up method of protection. Respirators can also protect against oxygen-deficient atmospheres. Increased breathing rates, accelerated heartbeat, and impaired thinking or coordination occur more quickly in an oxygen-deficient atmosphere. Even a momentary loss of coordination may be devastating to a worker if it occurs while the worker is performing a potentially dangerous activity, such as climbing a ladder.

When Do Employees Need to Wear Respirators? 3

Respirators must be used during cleanup operations, when effective engineering controls are not feasible, or when engineering controls are not feasible, or when engineering controls are being installed.

The prevention of atmospheric contamination at the worksite generally should be accomplished as far as feasible, by engineering, control measures—such as enclosing or confining the contaminant-producing operation, exhausting the contaminant—or substituting with less toxic materials.

Respirators have their limitations and are not a substitute for effective engineering controls. Where respirators are required to protect worker health, specific procedures are necessary to overcome any potential deficiencies and to ensure the effectiveness of the equipment.



4 What Procedures Are Necessary to Ensure Proper Protection?

OSHA's respirator standard[1] requires that employers establish and maintain an effective respiratory program—different hazards require different respirators—and employees are responsible for wearing the respirator and complying with the program.

The standard contains requirements for program administration, worksite-specific procedures, respirator selection, employee training, fit testing, medical evaluation, and respirator use, cleaning, maintenance, and repair.

Respirators must be used while effective engineering controls, if they are feasible, are being installed. If engineering controls are not feasible, employers must provide respirators, and employees must wear them when it is necessary to protect their health. The equipment issued to the employee must be properly selected, used, and maintained for a particular work environment and contaminant, and employees must be trained in all aspects of the respiratory protection program.

[1]OSHA's regulations cover general, construction, and maritime industries. See *Title 29 Code of Federal Regulations* (CFR), Part 1910.134; and the Compressed Gas Association's Commodity Specification G-7-1989, also referenced in CFR Part 1910.134.

When planning a program to control occupational illness caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, vapors, or sprays, the primary objective should be prevention.

Responsibility for the program must rest with one person. The program administrator must have sufficient knowledge of the subject to supervise the program properly. Larger plants or companies with industrial hygiene, health physics, plant medical department, safety engineering, or fire prevention departments should administer the program in liaison with the program administrator. In smaller plants that do not have industrial hygiene, health physics, safety engineering, or fire prevention departments, the program must be administered by an upper-level superintendent, foreman, or qualified person to be the responsible program administrator for the respirator program.

Any respirator program should stress thorough training of all users. Employees must be aware that the equipment does not eliminate the hazard. If the equipment fails, overexposure will occur. To reduce the possibility of failure, equipment must fit properly and be maintained in a clean and serviceable condition. Employers and employees must understand the equipment's purpose and its limitations. The equipment must not be altered or removed by the wearer even for a short time, despite the fact the wearer may find it uncomfortable.

An effective respirator program must cover the following factors:

- written worksite specific procedures;
- program evaluation;
- selection;
- training;
- fit testing;
- inspection, cleaning, maintenance and storage;
- medical evaluations;

- work area surveillance;
- air quality standards; and
- approved respirators.

When OSHA or employers require respirator use, employers are required to have written operating procedures for the safe and proper use of respirators. Users must be familiar with these procedures as well as with available respirators and their limitations. In workplaces with no hazardous exposures, but where there is voluntary respirator use, certain written program elements may be necessary to prevent potential hazards associated with respirator use.

Employers must evaluate whether respirator use itself may harm employees. If so, employers must medically evaluate employees and, if necessary, restrict use, as well as comply with program elements. Employers must inform employees voluntarily using respirators of basic information in Appendix D of the standard.

The effectiveness of a company's respirator program must be evaluated regularly and the written operating procedure modified as necessary to reflect the evaluation results. The use of a labor-management team may be effective for the periodic evaluation.

How Do You Choose the Correct Respirator? 7

Choosing the right equipment involves determining what the hazard is and its extent, choosing approved equipment, and ensuring that the device is certified. Equipment must be used pursuant to the conditions accompanying the certification.

Chemical and physical properties of the contaminant, as well as the toxicity and concentration of the hazardous material and the amount of oxygen present, must be considered in selecting the proper respirators. The nature and extent of the hazard, work rate, area to be covered, mobility, work requirements and conditions, as well as the limitations and characteristics of the available respirators also are selection factors.

Air-purifying respirators use filters or sorbents to remove harmful substances from the air. They range from simple disposable masks to sophisticated devices.

Air-purifying respirators do not supply oxygen and may not be used in oxygen-deficient atmospheres or in ones that are immediately dangerous to life or health (IDLH). Atmosphere-supplying respirators are designed to provide breathable air from a clean air source other than the surrounding contaminated work atmosphere. They range from supplied-air respirators and self-contained breathing apparatus (SCBA) to complete air-supplied suits.

The time needed to perform a given task, including the time necessary to enter and leave a contaminated area, is one factor that determines the type of respiratory protection needed. For example, SCBAs, gas-masks, or air-purifying chemical-cartridge respirators provide respiratory protection for relatively short periods whereas a type of atmosphere-supplying respirator that supplies breathable air from an air compressor through an air line can provide protection for extended periods of time. Particulate filter air-purifying respirators can provide protection for long periods without the need of filter replacement **only** if the total concentration of atmospheric particulates is low. Where there are higher concentrations of contaminants, however, an atmosphere-supplying respirator such as the

positive-pressure supplied-air respirator (SAR) offers the advantage of better protection and longer duration.

The use of SARs also avoids the need to be concerned about determining filter breakthrough times, change schedules, or using end-of-service-life indicators (ESLI) for airborne toxic materials, a factor that must be considered when using air-purifying respirators. SARs also cause less discomfort than air-purifying respirators because the wearer need not overcome filter resistance when inhaling.

Air-purifying respirators present minimal interference with the wearer's movement. Atmosphere-supplying respirators, however, may restrict movement and present potential hazards. For example, SARs with their trailing hoses, can limit the area the wearer can cover and may present a potential hazard where the trailing hose can come into contact with machinery. Similarly, an SCBA—a respirator that includes a back-mounted, compressed-air cylinder—presents both a size and weight penalty. This may restrict climbing and movement in tight places, and carrying the added weight of the air cylinder presents an additional burden.

Another factor to consider when using respirators is the air-supply rates. The wearer's work rate determines the volume of air breathed per minute. The volume of air supplied to meet the breathing requirements is of great significance when using atmosphere-supplying respirators such as self-contained and air-line respirators that use cylinders because this volume determines their operating life. The useful service life of these respirators under even moderate working conditions may be significantly less than under conditions of rest.

The peak airflow rate also is important in the use of a constant-flow SAR. The air-supply rate should always be greater than the maximum amount of air being inhaled in order to maintain the respiratory enclosure under positive pressure.

Higher breathing resistance of air-purifying respirators under conditions of heavy work may result in distressed breathing. A person working in an area of high temperature or humidity is under stress. Additional stress resulting from the use of a respirator should be minimized by using one having a minimal weight and a minimal breathing resistance when these can be fitted properly to the wearer.

Some type of warning as to the remaining service is available for SCBAs and for some chemical canister respirators. This may be a pressure gauge or timer with an audible alarm for SCBAs or a color-end-of-service-life indicator (ESLI) on the cartridge or canister. The user should understand the operation and limitations of each type of warning device. Since many gas masks and chemical-cartridge respirators have no ESLI indicators for their remaining service life, the employer or employee will need to do service life calcuations. It is important, therefore, that new canisters and cartridges be used at the beginning of each work shift.

10 What Are Some Specific Respirator Uses?

The following list presents a simplified version of characteristics and factors used for respirator selection. It does not specify the contaminant concentrations or particle size. Some OSHA substance-specific standards include more detailed information on respirator selection.

Hazard	Respirator
Oxygen Deficiency	
Immediately dangerous to life or health.*	Any positive-pressure SCBA. Combination positive-pressure with auxiliary self-contained air supply.
Not immediately dangerous to life or health.	Any positive-pressure SCBA or supplied-air respirator.
Gas and vapor contaminants	
Immediately dangerous to life or health.	Positive-pressure SCBA. Combination positive-pressure SAR with auxiliary self-contained air supply respirator.
Not immediately dangerous to life or health.	Any positive-pressure SAR. Gas mask. Chemical cartridge respirator.
Particulate contaminants	Any positive-presure SAR including abrasive blasting respirator. Powered air-purifying respirator equipped with high-efficiency filters. Any air-purifying respirator with a specific particulate filter.

Hazard	Respirator
Gaseous and particulate contaminants	
Immediately dangerous to life or health.	Positive-pressure SCBA. Combination positive-pressure SARwith auxiliary self-contained air supply.
Gaseous and particulate contaminants	
Not immediately dangerous to life or health.	Any positive-pressure supplied-air respirator. Gas mask. Chemical-cartridge respirator.
Escape from contaminated atmosphere that may be immediately dangerous to life or health	Any positive-pressure SCBA. Gas mask. Combination positive-pressure SAR with escape SCBA.
Firefighting	Any positive-pressure SCBA

*Note: "Immediately dangerous to life or health" (IDLH) is any condition that poses either an immediate threat of severe exposure to contaminants, such as radioactive materials, which are likely to have adverse, delayed effects on health.

12 Who Needs to Be Trained?

Supervisors and workers must be taught the proper selection, use, and maintenance of respirators.

All employees required to use respiratory protective equipment must be instructed in the proper use of the equipment and its limitations. Those employees who will be required to use respiratory protective equipment in atmospheres immediately dangerous to life or health must be trained in rescue procedures.

Training must be comprehensive enough so that, when completed, the employee will be able to demonstrate a knowledge of the limitations and capabilities of the respirator, why the respirator is necessary, and how improper fit, usage, or maintanance can compromise the respirator.

Training must include an explanation of the following:

- Nature of the respiratory hazard and what may happen if the respirator is not used properly,
- Engineering and administrative controls being used and the need for the respirator as added protection,
- Reason(s) for the selection of a particular type of respirator,
- Limitations of the selected respirator,
- Methods of donning the respirator, performing a user seal check, and ensuring proper operation.
- Proper wear of the respirator,
- Respirator maintenance and storage, and
- Proper method for handling emergency situations.

Users should know that improper respirator use or maintenance may cause overexposure. They should know that continued use of poorly fitted and maintained respirators can also cause chronic disease or death from overexposure to air contaminants.

Full facepieces, half masks, quarter masks and even the different brands of the same type of respirator marketed, have different fit characteristics. No one respirator will fit everyone. Employers need to have sufficient sizes and models available to achieve proper fit.

Corrective eyeglasses worn by employees also present a problem when fitting respirators. Special mountings are available to hold corrective lenses inside full facepieces. If corrective lenses are needed, the facepiece and lenses must be fitted by a qualified individual to provide good vision, comfort, and proper sealing.

The user must receive fitting instructions including demonstrations and practice in how to wear the respirator, how to adjust it, and how to determine if it fits properly.

Although respirators are designed for maximum efficiency, they cannot provide protection without a tight seal between the facepiece and the face of the wearer. Consequently, beards and other facial hair can substantially reduce the effectiveness of a respirator. The absence of dentures can seriously affect the fit of a facepiece. To ensure proper respiratory protection, a facepiece must be checked each time the respirator is worn. This can be accomplished by performing either a positive-pressure or negative-pressure user seal check. Detailed instructions for performing these tests can be found in Appendix B-1 of the OSHA standard.

The effectiveness of the fit of the facepiece can be tested two ways: qualitatively and quantitatively. Qualitative fit testing involves the introduction of a harmless odoriferous or irritating substance into the breathing zone around the respirator being worn. If no odor or irritation is detected by the wearer, a proper fit is indicated.

Quantitative fit testing offers more accurate, detailed information on respirator fit. It can involve introducing a harmless aerosol to the wearer while he or she is in a test chamber, the measurement of the ambient particulates in the air, or taking

controlled negative-pressure measurements. While the wearer performs excercises that could induce facepiece leakage, the air inside and outside the facepiece is then measured for the presence of an aerosol, ambient particulates, or pressure change, to determine any leakage into the respirator.

All respirators must be inspected for wear and deterioration of their components before and after each use. Special attention should be given to rubber or plastic parts that can deteriorate. The face-piece, especially the face seal surface, headband, valves, connecting tube, fittings, and canister must be in good condition. A respirator inspection must include a check of the tightness of the connections.

SCBAs must be inspected at least monthly. Air and oxygen cylinders must be fully charged according to the manufacturer's instructions. Regulator and warning devices must be checked to ensure their proper function. Records must be kept of inspection dates and findings.

Chemical cartridges and gas mask canisters must be replaced as necessary to provide complete protection. The manufacturer's recommendations must be followed. Mechanical filters must be replaced as necessary to avoid high resistance to breathing.

Repairs must be made only by experienced persons using parts specifically designed for the respirator. The manufacturer's instructions should be consulted for any repair, and no attempt should be made to repair or replace components or make adjustments or repairs beyond the manufacturer's recommendations.

A respirator that has been used must be cleaned and disinfected before it is reissued. Emergency-use rescue equipment must be cleaned and disinfected immediately after each use.

Respirators must be stored to protect against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals. Protection against any mechanical damage also should be provided. Respirators should be stored so that facepieces and exhalation valves will rest in a normal position to prevent the rubber or plastic from reforming into an abnormal shape.

Respirators may be washed in a detergent solution and then disinfected by immersion in a sanitizing solution. Cleaner-sanitizers that effectively clean the respirator and contain a bactericidal agent are commercially available. The bactericidal agent frequently used is a quaternary ammonium compound. Strong cleaning and sanitizing agents and many solvents can damage rubber or elastomeric respirator parts. Such materials must be used with caution or after consultation with the respirator manufacturer.

Persons assigned to tasks that require the use of a respirator must be physically able to perform the work while using the respirator. The local physician or licensed health care professional must determine what health and physical conditions are pertinent. The respirator user's medical status must then be reviewed periodically.

When respirators are worn in toxic atmospheres, the individual's body burden may be evaluated using appropriate laboratory tests. These may include urine, blood, or fecal analysis and other techniques to determine the intake and excretion of toxic substances. The findings of these tests, when correlated with other exposure data, such as air sampling data for wearers of such equipment, can serve as an indication of the effectiveness of the program. Positive evidence of exposure must be followed up with appropriate surveillance of work area conditions to determine if there is any relationship to inadequate respiratory protection or a need for additional engineering controls.

18 How Do You Monitor Work Areas?

Surveillance must be maintained of the conditions in the work area and of the degree of worker exposure or stress (combination of work rate, environmental conditions, and physiological burdens of wearing a respirator). Changes in operating procedures, temperature, air movement, humidity, and work practices may influence the concentration of a substance in the work area atmosphere. These factors necessitate periodic monitoring of the air contaminant concentration. In instances where work is of such short duration that time to carry out the testing exceeds the time on the job, reasonable estimates of exposure are allowable.

In situations where the environment is or may be immediately dangerous to life or health (IDLH), employers shall ensure that one employee or, when needed, more than one employee is located outside the dangerous environment and that visual, voice, or signal line communication is maintained between the employees in the IDLH atmosphere and employee(s) outside. In interior structural firefighting situations employers must ensure that at least two employees enter the structure and remain in visual or voice contact with one another at all times. Also, at least two employees shall be located outside to provide effective emergency rescue.

Respiratory protective devices must be approved by the National Institute for Occupartional Safety and Health of the Department of Health and Human Services, for the contaminant or situation to which the employee is exposed.

Compressed air, compressed oxygen, liquid air, and liquid oxygen used for respiration must be of high purity. Oxygen must meet the requirements of the United States Pharmacopoeia for medical or breathable oxygen. Breathable air must meet at least the requirement for Grade D breathable air described in Compressed Gas Association (CGA) *Commodity Specification G-7.1-1989*. Compressed oxygen must not be used in open circuit SCBAs or SARs that have previously used compressed air. Oxygen must never be used with air-line respirators.

Breathable air may be supplied to respirators from cylinders or air compressors. For testing cylinders, see *Shipping Container Specifications of the Department of Transportation (49 CFR Part 178).*

Containers of breathable gas must be clearly marked (see *National Institute for Occupational Safety and Health, 42 CFR Part 84 requirements*). Further details on the sources of compressed air and its safe use can be found in the CGA pamphlet G-7.1-1989, mentioned above.

The compressor for supplying air must be equipped with the necessary safety devices and alarms. Compressors must be constructed and situated to avoid any entry of contaminated air into the system and must be equipped with suitable in-line, air-purifying sorbent beds and filters installed to ensure air quality. If an oil-lubricated compressor is used, it must have a high-temperature or carbon monoxide alarm or both. If only the high-temperature alarm is used, the air from the compressor must be tested frequently for carbon monoxide.

Air-line couplings must be incompatible with outlets for other gas systems to prevent accidental servicing of air-line respirators with nonrespirable gases or oxygen.

20 What Other Help Can OSHA Provide?

OSHA has a variety of products and programs available to help employers comply with its regulations and improve workplace safety and health. These include numerous publications on regulatory topics, such as hazard communication, asbestos, bloodborne pathogens, and on programs such as consultation, voluntary protection, grants, and training and education to name a few.

Publications are available either as a single free copy per request or for sale by the U.S. Government Printing Office. OSHA also has several videos available on loan or for sale by the National Technical Information Service (www.ntis.gov) and its National Audiovisual Service (see OSHA publication 2019) and the agency Home Page at http://www.osha.gov/.

OSHA also offers a variety of programs and initiatives to help employers comply with the agency's standards or guidelines, as discussed in the following paragraphs.

Safety and Health Program Management Guidelines

Effective management of worker safety and health protection is a decisive factor in reducing the extent and severity of work-related injuries and illnesses and their related costs. To assist employers and employees in developing effective safety and health programs, OSHA published recommended *Safety and Health Program Management Guidelines* (*Federal Register* 54(18):3908-3916, January 26, 1989). These voluntary guidelines apply to all places of employment covered by OSHA.

The guidelines identify four general elements that are critical to the development of a successful safety and health management program:

- Management commitment and employee involvement,
- Worksite analysis,
- Hazard prevention and control, and
- Safety and health training.

The guidelines recommend specific actions, under each of these general elements to achieve an effective safety and health program. A single, free copy of the guidelines can be obtained from the OSHA Publications Office, U.S. Department of Labor, P.O. Box 37535, Washington, DC 20013-7535 by sending a self-addressed mail label with your request.

State Programs

The *Occupational Safety and Health Act of 1970* encourages states to develop and operate their own job safety and health plans. OSHA approves and monitors these plans. There are currently 25 state plan states: 23 of these states administer plans covering both private and public (state and local government) employment; the other 2 states, Connecticut and New York, cover the public sector only.

The 25 states and territories with their own OSHA-approved occupational safety and health plans must adopt standards identical to, or at least as effective as, the federal standards. Until a state standard is promulgated, OSHA will provide interim enforcement assistance, as appropriate, in these states. A listing of states with approved plans appears at the end of this publication.

Free Onsite Consultation

Free onsite safety and health consultation assistance is available in all states who want help in establishing and maintaining a safe and healthful workplace. Primarily developed for smaller employers with more hazardous operations, the consultation service is largely funded by OSHA and is delivered by state governments employing professional safety consultants and health consultants. Comprehensive assistance includes an appraisal of all mechanical, physical work practices and environmental hazards of the workplace and all aspects of the employer's present job safety and health program. In addition, the service assists employers with developing and implementing an effective workplace safety and health program that corrects and continuously addresses safety and health concerns.

This program is completely separate from OSHA's inspection efforts. No penalties are proposed or citations issued for any safety and health problems identified by the consultant. The service is confidential.

For more information concerning consultation assistance, see the list of state consultation projects at the end of this publication.

Voluntary Protection Programs

The Voluntary Protection Programs (VPPs) are designed to recognize and promote effective safety and health program management. In the VPP, management, labor, and OSHA establish cooperative relationships at workplaces that have implemented strong programs.

Sites approved for VPP's Star, Merit, and Demonstration programs have met and must continue to meet, rigorous participation standards. Benefits of VPP participation include improved employee motivation to work safely, leading to better quality and productivity; lost-workday cases rates that generally are 60 to 80

percent below industry averages; reduced workers' compensation and other injury and illness-related costs; positive community recognition and interaction; further improvement and revitalization of already good safety and health programs; and partnership with OSHA.

For additional information about the VPP contact the VPP manager in your OSHA Regional Office, listed at the end of this publication.

Training and Education

OSHA's area offices offer a variety of informational services, such as publications, audiovisual aids, technical advice, and speakers for special engagements. OSHA's Training Institute in Des Plaines, IL, provides basic and advanced courses in safety and health for federal and state compliance officers, state consultants, federal agency personnel, and private sector employers, employees, and their representatives.

In addition, the Training Institute has established OSHA Training Institute Education Centers to address the increased demand for its courses from the private sector and from other federal agencies. These centers are nonprofit colleges, universities, and other organizations that have been selected after a competition for participation in the program.

OSHA also provides funds to nonprofit organizations, through grants, to conduct workplace training and education in subjects where OSHA believes there is a lack of workplace training. Grants are awarded annually. Grant recipients are expected to contribute a matching share of at least 20 percent of the total grant cost.

For more information on grants, training, and education, contact the OSHA Training Institute, Office of Training and Education, 1555 Times Drive, Des Plaines, IL 60018, (847) 297-4810; or (847) 297-4874 fax.

Electronic Information

Internet—OSHA standards, interpretations, directives, technical advisors, compliance assistance, and additional information are now on the World Wide Web at: http://www.osha.gov/.

CD-ROM—A wide variety of OSHA materials including standards, interpretations, directives, and more can be purchased on CD-ROM from the Government Printing Office. To order, write to Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. Specify OSHA Regulations, Documents, and Technical Information on CD-ROM (ORDT), S/N 729-013-00000-5. the price is $43.00 per year ($53.75 foreign); single copy $17.00 ($21.25 foreign).

Emergencies

To report life-threatening situations, catastrophes, or fatalities, call **(800) 321-OSHA.** Complaints will go immediately to the nearest OSHA area or state ofice for help.

For further information on any OSHA program, contact your nearest OSHA area or regional office listed at the end of this publication.

Single, free copies of the following putlications can be obtained from the OSHA Publications Office, U.S. Department of Labor, 200 Constitution Avenue, N.W., Room N3101, Washington, DC 20210, or from the nearest OSHA regional or area office listed in this booklet. Send a self-addressed label with your request.

All About OSHA—OSHA 2056

Chemical Hazard Communication—OSHA 3084

Consultation Services for the Employer—OSHA 3047

OSHA Inspections—OSHA 2098

Employee Workplace Rights—OSHA 3021

Personal Protective Equipment—OSHA 3077

Process Safety Management—OSHA 3132

Process Safety Management Guidelines for Compliance—OSHA 3133

The following publications are available from the Superintendent of Documents, U.S Government Printing Office, Washington, DC 20402. Phone (202) 783-3238 or fax (202) 512-2250 inquiries or oders. Orders are payable by Visa, MasterCard, or Checks; please include GPO Order Numbers with your order.

Hazard Communication - A Compliance Kit—OSHA 3104.
(A reference guide to step-by-step requirements for compliance with the OSHA standard.) Order No. 929-022-00000-9; cost $18.00 domestic, $22.50 foreign.

Hazard Communication Guidelines for Compliance—OSHA 3111. Order No. 029-026-00127-1; cost $1.50.

Job Hazard Analysis—OSHA 3071.
Order No. 029-016-00142; cost $1.00.

Principal Emergency Response and Preparedness Requirements in OSHA Standards and Guidance for Safety and Health Programs—OSHA 3122. Order No. 029-016-00136; cost $3.75.

OSHA Handbook for Small Businesses—OSHA 2209. Order No. 029-016-00144-1; cost $6.50.

Assessing the Need for Personal Protective Equipment—OSHA 3151. Order No. 029-016-00179-4; cost $4.25.

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(517) 373-7230

Commissioner
Minnesota Department
of Labor and Industry
443 Lafayette Road
St. Paul, MN 55155
(612) 296-2342

Administrator
Nevada Division of Industrial
Relations
400 West King Strret
Carson City, NV 89710
(702) 687-3032

Secretary
New Mexico Environment
Department
1190 St. Francis Drive
P.O. Box 26110
Santa Fe, NM 87502
(505) 827-2850

Commissioner
New York Department
of Labor
W. Averell Harriman State
Office Building–12,
Room 500
Albany, NY 12240
(518) 457-2741

Commissioner
North Carolina Department
of Labor
319 Chapanoke Road
Raleigh, NC 27603
(919) 662-4585

Administrator
Department of Consumer
and Busines Services
Occupational Safety and
Health Division (OR-OSHA)
300 Winter Street, NE
Salem, OR 97310-0220
(503) 378-3272

Secretary
Puerto Rico Department
of Labor and Human
Resources
Prudencio Rivera Martinez
Building
505 Munoz Rivera Avenue
Hato Rey, PR 00918
(809) 754-2119

Director
South Carolina Department
of Labor Licensing
and Regulation
Koger Office Park,
Kingstree Building
110 Centerview Drive
P.O. Box 11329
Columbia, SC 29210
(803) 896-4300

Commissioner
Tennessee Department
of Labor
710 James Robertson
Parkway
Nashville, TN 37243-0659
(615) 741-2582

Chairman
Industrial Commission
of Utah
160 East 300 South, 3rd Floor
P.O. Box 146650
Salt Lake City, UT 84110-6650
(801) 530-6898

Commissioner
Vermont Department of Labor
and Industry
National Life Building -
Drawer 20
Montpelier, VT 05620-3401
(802) 828-2288

Commissioner
Virgin Islands Department
of Labor
2131 Hospital Street, Box 890
Christiansted
St. Croix, VI 00820-4001
(809) 773-1994

Commissioner
Virginia Department of Labor
and Industry
Powers-Taylor Building
13 South 13th Street
Richmond, VA 23219
(804) 786-2377

Director
Washington Department
of Labor and Industries
General Administrative
Building
P.O. Box 44001
Olympia, WA 98504-4001
(206) 902-4200

Administrtor
Workers' Safety
and Compensation Division
(WSC)
Wyoming Department
of Employment
Herschler Building
2nd Floor East
122 West 25th Street
Cheyenne, WY 82002
(307) 777-7786

State	Telephone
Alabama	(205) 348-3033
Alaska	(907) 269-4939
Arizona	(602) 542-5795
Arkansas	(501) 682-4522
California	(415) 703-4441
Colorado	(303) 491-6151
Connecticut	(203) 566-4550
Delaware	(302) 577-3908
District of Columbia	(202) 576-6339
Florida	(904) 488-3044
Georgia	(404) 894-8274
Guam	(671) 646-9244
Hawaii	(808) 586-9116
Idaho	(208) 385-3283
Illinois	(312) 814-2337
Indiana	(317) 232-2688
Iowa	(515) 281-5352
Kansas	(913) 296-4386
Kentucky	(502) 564-6895
Louisiana	(504) 342-9601
Maine	(207) 289-6460
Maryland	(410) 333-4218
Massachusetts	(617) 727-3463
Michigan	(517) 335-8250 *(H)*
	(517) 322-1809 *(S)*
Minnesota	(612) 297-2393
Mississippi	(601) 987-3981
Missouri	(314) 526-3505
Montana	(406) 444-6401
Nebraska	(402) 471-4717
Nevada	(702) 486-5016
New Hampshire	(603) 271-6155
New Jersey	(609) 292-3923
New Mexico	(505) 827-2877

New York	(518) 457-2481
North Carolina	(919) 733-3949
North Dakota	(701) 221-5188
Ohio	(614) 644-2631
Oklahoma	(405) 528-1500
Oregon	(503) 378-3272
Pennsylvania	(800) 382-1241
Puerto Rico	(809) 754-2171
Rhode Island	(401) 277-2438
South Carolina	(803) 734-9599
South Dakota	(605) 688-4101
Tennessee	(615) 741-7036
Texas	(512) 440-3834
Utah	(801) 530-6868
Vermont	(802) 828-2765
Virginia	(804) 786-8707
Virgin Islands	(809) 772-1315
Washington	(206) 956-5443
West Virginia	(304) 558-7890
Wisconsin	(608) 266-8579(*H*)
	(414) 521-5063 (*S*)
Wyoming	(307) 777-7786

(*H*) - Health

(S) - Safety

32 OSHA Consultation Project Directory

State	Telephone
Alabama	(205) 348-7136
Alaska	(907) 269-4957
Arizona	(602) 542-5795
Arkansas	(501) 682-4522
California	(415) 972-8515
Colorado	(970) 491-6151
Connecticut	(860) 566-4550
Delaware	(302) 761-8219
District of Columbia	(202) 576-6339
Florida	(904) 488-3044
Georgia	(404) 894-2643
Guam	011(671) 475-0136
Hawaii	(808) 586-9100
Idaho	(208) 385-3283
Illinois	(312) 814-2337
Indiana	(317) 232-2688
Iowa	(515) 965-7162
Kansas	(913) 296-7476
Kentucky	(502) 564-6895
Louisiana	(504) 342-9601
Maine	(207) 624-6460
Maryland	(410) 333-4970
Massachusetts	(617) 727-3982
Michigan	(517) 332-1817 (H)
	(517) 322-1809 (S)
Minnesota	(612) 297-2393
Mississippi	(601) 987-3981
Missouri	(573) 751-3403
Montana	(406) 444-6418
Nebraska	(402) 471-4717
Nevada	(702) 486-5016
New Hampshire	(603) 271-2024
New Jersey	(609) 292-2424
New Mexico	(505) 827-4230

New York	(518) 457-2481
North Carolina	(919) 662-4644
North Dakota	(701) 328-5188
Ohio	(614) 644-2246
Oklahoma	(405) 528-1500
Oregon	(503) 378-3272
Pennsylvania	(412) 357-2561
Puerto Rico	(787) 754-2188
Rhode Island	(401) 277-2438
South Carolina	(803) 896-4300
South Dakota	(605) 688-4101
Tennessee	(615) 741-7036
Texas	(512) 440-3809
Utah	(801) 530-7606
Vermont	(802) 828-2765
Virginia	(804) 786-6359
Virgin Islands	(809) 772-1315
Washington	(360) 902-5638
West Virginia	(304) 558-7890
Wisconsin	(608) 266-8579 (H)
	(414) 521-5063 (S)
Wyoming	(307) 777-7786

(H) - Health
(S) - Safety

34 OSHA Area Offices

Area	Telephone
Albany, NY	(518) 464-4338
Albuquerque, NM	(505) 248-5302
Allentown, PA	(610) 776-0592
Anchorage, AK	(907) 271-5152
Appleton, WI	(414) 734-4521
Austin, TX	(512) 916-5738
Avenel, NJ	(908) 750-3270
Baltimore, MD	(410) 962-2840
Bangor, ME	(207) 941-8177
Baton Rouge, LA	(504) 389-0474
Bayside, NY	(718) 279-9060
Bellevue, WA	(206) 553-7520
Billings, MT	(406) 247-7494
Birmingham, AL	(205) 731-1534
Bismarck, ND	(701) 250-4521
Boise, ID	(208) 321-2960
Bowmansville, NY	(716) 684-3891
Braintree, MA	(617) 565-6924
Bridgeport, CT	(203) 579-5581
Calumet City, IL	(708) 891-3800
Carson City, NV	(702) 885-6963
Charleston, WV	(304) 347-5937
Cincinnati, OH	(513) 841-4132
Cleveland, OH	(216) 522-3818
Columbia, SC	(803) 765-5904
Columbus, OH	(614) 469-5582
Concord, NH	(603) 225-1629
Corpus Christi, TX	(512) 888-3420
Dallas, TX	(214) 320-2400
Denver, CO	(303) 844-5285
Des Plaines, IL	(847) 803-4800
Des Moines, IA	(515) 284-4794
Englewood, CO	(303) 843-4500
Erie, PA	(814) 833-5758

Area	Telephone
Fort Lauderdale, FL	(954) 424-0242
Fort Worth, TX	(817) 428-2470
Frankfort, KY	(502) 227-7024
Guaynabo, PR	(787) 277-1560
Harrisburg, PA	(717) 782-3902
Hartford, CT	(202) 240-3152
Hasbrouck Heights, NJ	(201) 288-1700
Honolulu, HI	(808) 541-2685
Houston, TX	(713) 286-0583
Houston, TX	(281) 591-2438
Indianapolis, IN	(317) 226-7290
Jackson, MS	(601) 965-4606
Jacksonville, FL	(904) 232-2895
Kansas City, MO	(816) 483-9531
Lansing, MI	(517) 377-1892
Little Rock, AR	(501) 324-6291
Lubbock, TX	(806) 743-7681
Madison, WI	(608) 264-5388
Marlton, NJ	(609) 757-5181
Methuen, MA	(617) 565-8110
Milwaukee, WI	(414) 297-3315
Minneapolis, MN	(612) 664-5460
Mobile, AL	(334) 441-6131
Nashville, TN	(615) 781-5423
New York, NY	(212) 466-2482
Norfolk, VA	(757) 441-3820
North Aurora, IL	(630) 896-8700
Oklahoma City, OK	(405) 231 -5351
Omaha, NE	(402) 221-3182
Parsippany, NJ	(201) 263-1003
Peoria, IL	(309) 671-7033
Philadelphia, PA	(215) 597-4955
Phoenix, AZ	(602) 640-2007
Pittsburgh, PA	(412) 395-4903

Area	Telephone
Portland, OR	(503) 326-2251
Providence, RI	(401) 528-4669
Raleigh, NC	(919) 856-4770
Salt Lake City, UT	(801) 487-0073
Sacramento, CA	(916) 566-7470
San Diego, CA	(619) 557-2909
Savannah, GA	(912) 652-4393
Smyrna, GA	(770) 984-8700
Springfield, MA	(413) 785-0123
St. Louis, MO	(314) 425-4249
Syracuse, NY	(315) 451-0808
Tampa, FL	(813) 626-1177
Tarrytown, NY	(914) 524-7510
Toledo, OH	(419) 259-7542
Tucker, GA	(770) 493-6644
Westbury, NY	(516) 334-3344
Wichita, KS	(316) 269-6644
Wilkes Barre, PA	(717) 826-6538
Wilmington, DE	(302) 573-6115

Region I
(CT,* MA, ME, NH, RI, VT*)
JKF Federal Building
Room E-340
Boston, MA 02203
Telephone: (617) 565-9860

Region II
(NJ, NY,* PR,* VI*)
201 Varick Street
Room 670
New York, NY 10014
Telephone: (212) 337-2378

Region III
(DC, DE, MD,* PA, VA,* WV)
Gateway Building, Suite 2100
3535 Market Street
Philadelphia, PA 19104
Telephone: (215) 596-1201

Region IV
(AL, FL, GA, KY,* MS, NC, SC,* TN*)
Atlanta Federal Center
61 Forsyth Street, SW,
Room 6T50
Atlanta, GA 30303
Telephone: (404) 562-2300

Region V
(IL, IN,* MI,* MN,* OH, WI)
230 South Dearborn Street
Room 3244
Chicago, IL 60604
Telephone: (312) 353-2220

Region VI
(AR, LA, NM,* OK, TX)
525 Griffin Street
Room 602
Dallas, TX 75202
Telephone: (214) 767-4731

Region VII
(IA,* KS, MO, NE)
City Center Square
1100 Main Street, Suite 800
Kansas City, MO 64105
Telephone: (816) 426-5861

Region VIII
(CO, MT, ND, SD, UT,* WY*)
1999 Broadway, Suite 1690
Denver, CO 80202-5716
Telephone: (303) 844-1600

Region IX
(American Samoa, AZ,* CA,* Guam, HI,* NV,* Trust Territories of the Pacific)
71 Stevenson Street
Room 420
San Francisco, CA 94105
Telephone: (415) 975-4310

Region X
(AK,* ID, OR,* WA*)
1111 Third Avenue
Suite 715
Seattle, WA 98101-3212
Telephone: (206) 553-5930

*These states and territories operate their own OSHA-approved job safety and health programs (Connecticut and New York plans cover public employees only). States with approved programs must have a standard that is identical to, or at least as effective, as the federal standard.